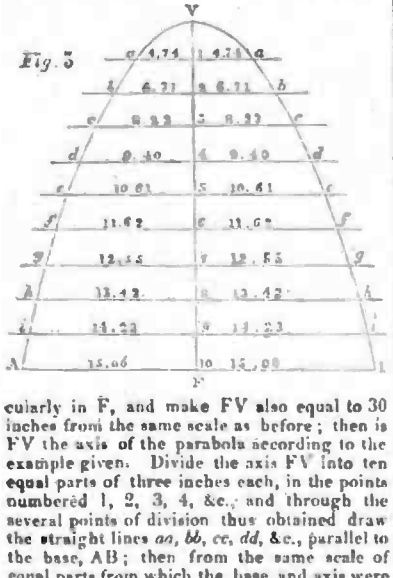
and its abscissa, the parameter of the axis can always be determined, since by the definitions page 463, and from what has been shewn above, it is always a third proportional to those two quantities. It is not, however, absolutely necessary to determine the value of the parameter for the purpose of delineating the curve, as that can be done mechanically by means of a series of ordinates calculated by the first rule, as deduced from the general equation (A); it must, however, be understood that the parameter is involved in that process also, although not exhibited as an independent term. We shall now proceed to shew how the parabola is to be constructed mechanically, by a series of ordinates calculated in the manner here mentioned.

Problem. Let it be required to delineate a parabola of which the base is 30 inches, and the axis 30 inches.

In order to obtain a series of ordinates, it becomes necessary in the first place to have a series of corresponding abscisses, and for this purpose, we must divide the axis into a certain number of parts or intervals, through which the ordinates are to be drawn; it matters not whether those intervals are equal or unequal, but it is most convenient, both for the calculation of the ordinates and for the graphic delineation, that the intervals should be equal. Now, if we divide 30 into 10 equal parts of 3 inches each, the series of abscissas for which the ordinates are to be computed will be 3, 6, 9, 12, 15, 18, 21, 24, 27, being 9 in all, the last, or tenth ordinate, being equal to half the given base.

Consequently, the series of ordinates corresponding to these abscisses as calculated by the rule for that purpose, are 4·74, 6·71, 8·22, 9·49, 10·61, 11·62, 12·55, 13·42, and 14·23 inches respectively; therefore, if indefinite right lines be drawn through the several points of division on the axis parallel to the base, and on each of these lines both ways, the above ordinates be set off from a scale of equal parts, the curve that passes through the extremities of all these ordinates will be the parabola required; but this will be best understood by carefully tracing the steps of construction as follows.

Draw the straight line AB, fig 3, to represent the base of the parabola, which make equal to 30 inches from a scale of any convenient magnitude at pleasure. Bisect AB perpendi-



cularly in F, and make FV also equal to 30 inches from the same scale as before; then is FV the axis of the parabola according to the example given. Divide the axis FV into ten equal parts of three inches each, in the points numbered 1, 2, 3, 4, &c., and through the several points of division thus obtained draw the straight lines *aa*, *bb*, *cc*, *dd*, &c., parallel to the base, AB; then from the same scale of equal parts from which the base and axis were taken, set off both ways from the points of division on the axis the several calculated ordinates as shewn in the scheme, and the curve which passes through the several extremities of the ordinates will be the curve of the parabola required; and in this way may any other parabola be constructed mechanically by means of a series of computed ordinates, without knowing the actual numerical value of the parameter. T.

MANCHESTER ATHENÆUM. — A second grand *soirée* will be held by the members of this institution on Thursday evening, October 23rd.

FOREIGN ARCHITECTURAL AND COLLATERAL INTELLIGENCE.

Embankment of the Nile. — For several years past it has been stated, that Mehemed-Ali contemplated those stupendous works, which now appear near their realization. A French engineer, Mr. Naugel, is charged with the execution of this plan. The dredges and steam-engines have already been ordered in some of the manufactories of Paris. Mr. Naugel has also just purchased, by order of the Viceroy, sixteen brick-machines, made after the plan of Mr. Carville, and which have occupied a conspicuous place in the late exhibition of French industry, each of which can produce every day more than 10,000 bricks, almost without any expense. The chief engineer will also convey to Egypt thirty large crushing machines for making hydraulic lime and cement.

The Houses of Luther and Melancthon at Wittenberg. — These once rather humble domiciles are now attracting royal attention, like Luther's chamber on the Wartburg. The King of Prussia has given orders to purchase the former and to convert them into public schools. The renowned gates of the Wittenberg Cathedral also, where Luther boldly affixed his "positions," and which are nearly decayed, will be replaced by new ones made of brass, and richly ornamented with emblems.

The Present State of Cologne Cathedral. — The work of restoration has progressed most prosperously during this season, and the King of Prussia, who had occasion to see it during his stay at the Rhine, has addressed a very flattering note to the Directors of the Dome-Building Association. The two lateral portals have so far proceeded, that the arch over one of the entrances (richly decorated) is nearly completed. In fact, the building grows under the eyes of the beholders, but few can have an idea of its difficulties. The south aisle is now opened to the public, and if we consider, that its ceiling has been completed within the last two years, that new casements of the windows, etc., have been added, we may expect, that by 1848, the main nave also, up to the second gallery, will be completed. It is supposed, that by this time also the north tower up to the finishing of the main portal will be completed.

Scientific Congress at Naples.—This meeting—the first of the kind ever held in that capital—has been opened with much solemnity in the presence of the king. The number of gentlemen present was an unprecedented one, viz. 1,500, from all parts of Europe and even America. What comes within the province of this Journal shall be stated on a future occasion.

THE SANATORY CONDITION OF THE WORKING CLASSES IN PARIS.

MR. ALPHONSE BEAUMONT—the Irish traveller, and brother to Elie Beaumont, the great geologist, has put forth an article on the above subject, from which we extract as much as comes within our province, and may be useful to the English worker. We agree with the noble French philanthropist, that "*Industrial Hygiene*" and its practical and legislative application, is a field scarcely trodden—if we except the late efforts of Lord Ashley and a few others. Mr. Gay Lussac in France, and the Health of Towns Commission here, have fixed public attention on the murderous (*meurtrier*) condition of many of the manufactories and workshops. Still, the hitherto laws relating thereto, have entirely left aside that paramount care for the worker occupied in the interior of buildings—and have not attended but to the inconvenience which may result to the *neighbourhood* of such establishments. The laws regulating the work of children and females (here and in France) can be called only *preparatory*, and regulations for the protection of the health of the adult worker are to be added to the *statute* of industrial enactments (!). The law of 1841 has given to the Government of France the power of regulating the operations of manufactories where children are employed, and Mr. Beaumont wishes that this power should extend to all establishments where the health of the worker is placed in jeopardy. The thing seems self-evident, because, if by any insalubrious occupation hundreds of workers are sent to the hospitals, and finally to charitable establishments (poor-houses), it is not the individual manufacturer who bears these expenses, but the public at large. Mr. *Gendrin*, physician of the Hospital de la Pitié, in Paris, has addressed the Minister of Commerce on the subject of saturnine affections (poisoning by lead), and has, besides the mode of treatment, put forth the means of *preventing* these diseases.

But the subject which comes most within the limits of this journal are the diseases to which the workers in paper-hanging manufactories are exposed. *Dr. Blandet* has lately read three essays on that subject before the Académie des Sciences (Royal Society). It is especially the *Schweinfurt green* (Vert de Schweinfurt), which proves noxious to the paper-stainers; as it is composed of acetate of copper and arsenicated acid. Most of the operations of those workers bring on cutaneous diseases. Many of these accidents, however, could be obviated by the care of the workmen, who, nevertheless, *refuse* to take the precautions indicated to them by some of their humane masters. Mr. Beaumont cites examples, where the men had disobeyed the injunction of using especial garments in their hours of labour, and others who would not avail themselves of the tepid bath, which was offered them gratuitously every evening. Gloomy samples, indeed, of the recklessness and atheism of our age; and Mr. Beaumont says very truly, that in this instance also, the material welfare of the humbler classes is intimately connected with their mental or *mind's* development. *A course of Hygiene*, in fine, is recommended by our talented contemporary, as one of the most essential agencies for the future welfare of whole generations. Mr. B. respectfully addresses himself to the Minister of Commerce, Mr. Cunin Gridaine, to effect such a praiseworthy object; which, if applied to this country, would mean the Board of Trade. J. L.

STATE OF THE WESTMINSTER SEWERS.

THE following entry has been made in the "Book of Informations" at the Westminster Sewers' office, by Mr. Phillips, the clerk of the works, with whose views on the subject of sewerage our readers are acquainted. It is, perhaps, desirable we should say that our information was not obtained through him:—

"*Oct.* 3, 1845.—In obedience to the order of Court, as expressed in bye law No. 60, namely, 'That each clerk of the works do endeavour to obtain every information on the state of the sewers within the district placed under his superintendence,' and 'that in the course of every month he inspect the whole of his district, and report his having so done, together with *his remarks and observations in the Book of Informations, in addition to such entries as have been usually made therein*:—'

"Therefore, I beg most respectfully to state, that there are a vast number of sewers under my superintendence that are similar to elongated cesspools, that is, they retain nearly all the sewage matter that is discharged into them, instead of affording efficient means for speedily carrying it off; and the stench and effluvia from the decomposed filth thus accumulated, escape through the untrapped gullies and drains, and contaminate the surrounding atmosphere with nauseous and deleterious gases, to the great injury of the health of the public: consequently they should not only be cleansed forthwith, but some ready and effectual means should be adopted in order to prevent the matter discharged into them afterwards from becoming deposited upon their bottom."

At the last meeting of the commissioners, held on the 3rd inst., Mr. Hawkins resigned the appointment of surveyor, on which Mr. Leslie, feeling that Mr. Phillips, in his endeavours to obtain an improvement of the sewers under his charge, had displayed a degree of moral courage not often found, and had shewn considerable ability, proposed him as a proper person to receive the vacant appointment. We trust the commissioners generally will think so too.

MACLISE'S CARTOON; THE SPIRIT OF CHIVALRY.—The committee of the Art-Union of London have shewn their taste and good judgment by determining to engrave this fine work for their subscribers.

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